

Volar Plate Fixation of a Comminuted Scaphoid Fracture in an Adolescent with a Greater Arc Injury

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Current standard surgery of scaphoid fractures includes compression screw fixation. Recent series, however, reintroduced volar plating as a valid fixation option in a small subset of scaphoid fractures including recalcitrant nonunions.^{1,2}

We wish to report a 14-year-old boy with a comminuted scaphoid fracture treated with volar plating to realign and fixate the multiple fragments. After a fall on a left outstretched hand

during skateboarding, a comminuted scaphoid waist fracture was seen on radiographs. Because of his young age, he was referred to our tertiary center. A subsequent computed tomographic (CT) scan showed an associated proximal capitate fracture, indicating a transscapho–transcapitate fracture dislocation (►Fig. 1A–D). After open reduction from a dorsal approach, the capitate fracture was fixated using two K-wires,

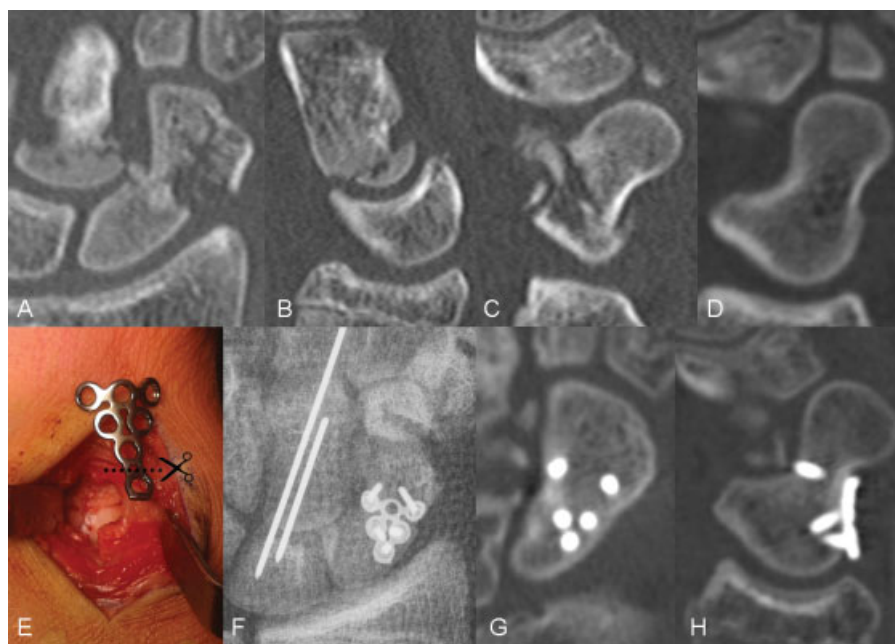


Fig. 1 (A–C) Coronal and sagittal CT images of the transscapho–transcapitate fracture dislocation including a comminuted scaphoid waist fracture and proximal capitate fracture with limited palmar rotation of the fragment. (D) Sagittal CT image of the contralateral healthy scaphoid. (E) Surgical exposure of the scaphoid fracture site through a palmar ligament-splitting approach. The plate was cut to the appropriate length, and bent to conform to the contour of the palmar scaphoid surface. (F) Postoperative anteroposterior radiograph showing two K-wires and plate in situ. (G, H) Postoperative coronal and sagittal CT image of the fixated scaphoid showing consolidation and anatomic alignment. CT, computed tomographic.

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which were removed 2 months postoperatively. The scaphoid fragments were intraoperatively manipulated using two percutaneous K-wires and fixated using a titanium locking miniplate (Medartis AG, Austrasse, Basel, Switzerland) in an open volar approach (►Fig. 1E, F). The plate was prebent to conform to the contour of the volar scaphoid surface. At 1 year follow-up, a CT scan showed bony consolidation and anatomic realignment (►Fig. 1G, H). The patient showed acceptable clinical outcome with painless range of motion, although limited (45 degrees of flexion; 45 degrees of extension).

3 The injury is well described in adults, but rarely in children and adolescents. One case from 1987 described a 13-year-old boy treated with two Ender-plates.⁴ Another case described a 12-year-old boy treated with only K-wires.⁵ In the current case, volar plating resulted in a consolidated scaphoid fracture with anatomic realignment of the multiple fragments. Our case also exemplifies the difficulty of diagnosing a greater arc injury, as the capitate fracture was initially overlooked on radiographs.

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Conflict of Interest

None.

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